

# Notice of Allowability

Application No.

09/856,331

Examiner

Sathyanarayan Pannala

Applicant(s)

SCHNEIDER, ERIC D.

Art Unit

2167

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/7/2005.
2. ☒ The allowed claim(s) is/are 1-2,4 and 9, renumbered as 1-4.
3. ☒ The drawings filed on 01 June 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.


**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 5/31/2005
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 7/6/2005.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

  
**MOHAMMAD ALI**  
**PRIMARY EXAMINER**

  
Sathyanarayan Pannala  
Patent Examiner  
Art Unit 2167

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/7/2005 has been entered.
2. Applicant's Amendment filed on 3/7/2005 has been entered with amended claims 1-4, added claims 10-19 and canceled claims 5-8.
3. Applicant canceled claims 3 and 10-19 during the Examiner initiated Interview held on 7/6/2005. In this Office Action, claims 1-2, 4 and 9 are renumbered as 1-4 and allowed.

### ***Information Disclosure Statement***

4. The information disclosure statement (IDS) submitted on 5/31/2005 was filed after the mailing date of the final Office Action on 12/3/2004. The submission is in compliance with the provisions of 37 CFR 1.97(b)(4). Accordingly, the information disclosure statement is being considered by the examiner.

***Specification***

5. A new abstract filed on 3/7/2005 of the disclosure is entered and it is approved by the examiner.

**EXAMINER'S AMENDMENT**

6. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Jeffrey Brill on 7/6/2005.

7. The application has been amended as follows:

**Claims:**

Amend the claims in the amendment filed on 3/7/2005 with the new version as follows:

**Claim 1:** (currently amended) A method of defragmenting file allocations on a disk, the method comprising:

determining pages to be swapped among various allocations made by an operating system (OS);

swapping determined pages by performing a step from a group of steps consisting of: a) manipulating data structures so as to indicate swapping of pages

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without actually swapping data between physical locations on a medium; and

b) moving data on a medium where OS visible data is read and written;

updating an OS file system mapping to reflect the swapped pages; and

logging indications of the swapped pages so that an image of the OS visible data prior to the swapping can be reconstructed, without requiring that each read operation and each write operation be written to a history log; and

incorporating desired close proximity information of various OS visible pages into an algorithm executed by an engine that determines pages to be swapped, in order to reasonably maintain close physical proximity of data allocated by the OS but physically re-mapped by the engine.

**Claim 2:** (previously amended) The method of claim 1, wherein the method is performed on a computer wherein a history of data is maintained such that the computer can be returned to a state of data from an earlier point in time.

**Claim 3:** cancel

**Claim 4:** (currently amended) The method of claim 1 3, wherein the method is performed on a computer wherein a history of data is maintained such that the computer can be returned to a state of data from an earlier point in time.

**Claims 5-8:** cancel

**Claim 9:** (original) A method according to claim 4, wherein the historical data is maintained by diverting writes to a different position on the disk so historical data remains in its original location.

**Claims 10-19:** cancel

### Reasons for Allowance

8. The following is an examiner's statement of reasons for allowance:

- Prior art of record fails to teach logging indications of the swapped pages so that an image of the OS visible data prior to the swapping can be reconstructed, without requiring that each read operation and each write operation be written to a history log. This claimed element is in independent claims 1.
- Stockman et al. (US Patent 5,778,392) teaches storage reorganizing system subdivides a reorganizable storage space into tile areas and each tile area either contains file data or does not contain file data. Whereas Cohen et al. (US Patent 5,761,680) teaches a file defragmentation utility for a computer system is disclosed that enables multithreaded preemptive multi-tasking during file defragmentation. The utility includes a defragmentor routine that defragments clusters or portions of a file on a storage media and then updates one or more file system structures to indicate the new locations of the defragmented clusters of the file.
- Applicant's argument in the in the Remarks filed on 3/7/2005 on page 9, paragraph 2 is persuasive and convincing.
- Applicant agreed and approved on 7/6/2005 to do Examiner's Amendment in order to expedite the prosecution of the application, see Interview Summary for details.

9. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sathyanarayan Pannala whose telephone number is (571) 272-4115. The examiner can normally be reached on 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

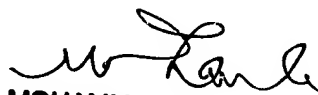
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For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sathyanarayan Pannala  
Examiner  
Art Unit 2167

srp  
July 7, 2005

  
**MOHAMMAD ALI**  
**PRIMARY EXAMINER**